hydrolyzing the alginate to form a mixture comprising polymannuronate and polyguluronate, wherein the polymannuronate has a molecular weight ranged from about 4,000 Dalton (Da) to about 500,000 Da, wherein the hydrolysis comprises adding one or more organic acids to the alginate and heating the mixture of the alginate and the organic acid, and wherein the organic acid is selected from the group consisting of citric acid, malic acid, oxalic acid, lactic acid, succinic acid, tartaric acid and acetic acid; and

isolating the polymannuronate from the mixture.

3. (Amended) The method of Claim 1, wherein the alginate has a molecular weight from about 2,000,000 Da to about 4,000,000 Da.

7. (Amended) The method of Claim 1, wherein the polymannuronate has a molecular weight from about 10,000 Da to about 100,000 Da.

8. (Amended) The method of Claim 1, wherein the polymannuronate has a molecular weight from about 25,000 Da to about 80,000 Da.

9. (Amended) The method of Claim 1, wherein the polymannuronate has a molecular weight from about 40,000 Da to about 50,000 Da.

12. (Amended) The method of preparing a polymannuronate composition, comprising:

providing alginate;

hydrolyzing the alginate to form a mixture comprising polymannuronate and polyguluronate, wherein the polymannuronate has a molecular weight ranged from about 4,000 Da to about 500,000 Da;

isolating the polymannuronate from the mixture; and

wherein the hydrolysis comprises adding one or more organic acids including acetic acid to the alginate and heating the mixture of the alginate and the organic acid, wherein the organic acid is acetic acid.

13. (Amended) The method of Claim 1, wherein the concentration of the organic acid is from about 0.2 M to about 0.6 M.

24. (Amended) A polymannuronate composition prepared by the method of Claim 1, wherein the composition comprises polymannuronate with a molecular weight from about 40,000 Da to about 80,000 Da.

29. (Amended) The polymannuronate composition of Claim 24, wherein the composition comprising polymannuronate with a molecular weight ranged from about 40,000 Da to about 50,000 Da.

30. (Amended) The polymannuronate composition prepared by the method of Claim 1, wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 1.25 centipoise (CP) to about 15 CP at 25 °C.

31. (Amended) The polymannuronate composition of Claim 30, wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 2 CP to about 10 CP at 25 °C.

A6

32. (Amended) The polymannuronate composition of Claim 30, wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 3 CP to about 7 CP at 25 °C.

33. (Amended) Substantially isolated polymannuronate having a molecular weight ranged from about 40,000 Da to about 80,000 Da.

34. (Amended) The isolated polymannuronate of Claim 33, wherein the polymannuronate has a purity from about 70 wt.% to about 98 wt.%.

36. (Amended) The isolated polymannuronate of Claim 33, wherein the polymannuronate has a molecular weight from about 40,000 Da to about 50,000 Da.

37. (Amended) The isolated polymannuronate of Claim 34, wherein the purity is from about 80 wt.% to about 97 wt.%.

A7

38. (Amended) The isolated polymannuronate having a molecular weight ranged from about 4,000 Da to about 500,000 Da with a purity from about 70 wt.% to about 98 wt.%, wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 1.25 CP to about 15 CP at 25 °C.

39. (Amended) The isolated polymannuronate of Claim 38, wherein wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 2 CP to about 10 CP at 25 °C.

40. (Amended) The isolated polymannuronate of Claim 38, wherein the isolated polymannuronate dissolved in water at a concentration of 2 % (w/v) has a viscosity from about 3 CP to about 7 CP at 25 °C.

A7 concl'd

41. (Amended) A nutritional composition comprising a foodstuff and polymannuronate having a molecular weight from about 40,000 Da to about 80,000 Da.

A8

48. (Amended) The nutritional composition of Claim 41, wherein in the event that the nutritional composition additionally comprises polyguluronate, the polyguluronate is in an amount less than about 30 wt.% of the total weight of the polymannuronate and polyguluronate.

50. (Amended) The nutritional composition of Claim 41, wherein the polymannuronate has a molecular weight from about 40,000 Da to about 50,000 Da.

A9

51. (Amended) A pharmaceutical composition comprising polymannuronate and a pharmaceutical carrier, wherein the polymannuronate has a molecular weight from about 40,000 Da to about 80,000 Da.

52. (Amended) The pharmaceutical composition of Claim 51, wherein in the event that the pharmaceutical composition additionally comprises polyguluronate, the polyguluronate is in an amount less than about 30 wt.% of the total weight of the polymannuronate and polyguluronate.

55. (Amended) The pharmaceutical composition of Claim 51, wherein the polymannuronate has a molecular weight ranged from about 40,000 Da to about 50,000 Da.

A10

56. (Amended) A method of treatment selected from the group consisting of controlling cholesterol level in blood, controlling serum lipids, hyperlipidemia, obesity, diabetes, and enhancing functions of liver, the method comprising administering a composition comprising a pharmaceutically acceptable carrier and polymannuronate having a molecular weight from about 40,000 Da to about 80,000 Da to a patient in need of such treatment.

59. (Amended) The method of Claim 56, wherein the polymannuronate has a molecular weight from about 40,000 Da to about 50,000 Da.

A11

60. (Amended) The method of Claim 56, wherein in the event that the composition additionally comprises polyguluronate, the polyguluronate is in an amount less than 30 wt.% of the total weight of the polymannuronate and polyguluronate.

61. (Amended) A method of expelling heavy metals from a body, comprising administering a composition comprising a pharmaceutically effective amount of polymannuronate or polygluronate and a pharmaceutically acceptable carrier, wherein the polymannuronate has a molecular weight from about 4,000 Da to about 500,000 Da.